



James O. Mason, M.D., Dr.P.H.  
Executive Director  
801-533-6111

DIVISIONS

Community Health Services  
Environmental Health  
Family Health Services  
Health Care Financing  
and Standards

OFFICES

Administrative Services  
Health Planning and  
Policy Development  
Medical Examiner  
State Health Laboratory

STATE OF UTAH  
DEPARTMENT OF HEALTH

DIVISION OF ENVIRONMENTAL HEALTH  
150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110

JR  
MW

info 021/004

533-6146  
August 20, 1980

Submitted  
8-30-80  
at Meeting

Alvin E. Rickers, Director  
Room 428 801-533-6121

DOGM  
MINERALS PROGRAM  
FILE COPY

Mark Welch, Chief Engineer  
Ranchers Exploration & Development Corp.  
Box 6217  
1776 Montano Road N.W.  
Albuquerque, NM 87197

Tailings

RE: Ammended Wastewater Construction Permit  
Escalante Silver Mine  
Enterprise, Utah

Dear Mark:

We have reviewed the plans and design criteria for the tailings facilities and ponds contained in the 3 volume Notice of Intention to Commence Mining Operations at the Escalante Silver Mine near Enterprise, Utah.

As a result of our review we find the plans to be in conformance with the Utah Wastewater Disposal Regulations and approve them for inclusion as part of our construction permit of March 7, 1980 which was issued at that time for minewater discharge from the Escalante Silver Mine. This part of the construction permit is issued subject to the following considerations:

1. The tailings pond will be located about  $1\frac{1}{2}$  mile west of the mill in a natural basin, three miles from the nearest irrigation well and four miles from the nearest habitation. The dam for the pond will be constructed in 3 stages and as shown on drawing E1045-47-4202-A:

Stage 1:

Pond Capacity	$20 \times 10^6 \text{ ft}^3$
Surface Area	33 ac
Embankment Height	37 ft.

Stage 2:

Pond Capacity	$40 \times 10^6 \text{ ft}^3$
Surface Area	48 ac
Embankment Height	47 ft

Stage 3:

Pond Capacity	$60 \times 10^6 \text{ ft}^3$
Surface	58 ac
Embankment Height	55 ft.

2. Tailings will be moved from the mill to the pond by a 4 inch diameter tail line and water from the pond will be returned to the mill via a screened reclaim riser and 4 inch reclaim line. The mill, ancillary facilities and tailings pond are designed for zero discharge of wastewater utilizing liners, concrete containment facilities and collection basins. Tests indicate no tailings or tailings solution will find their way into the groundwater.
3. The perimeter of the tailings pond will be fenced with 8' high hogwire fencing, and monitoring wells will be installed to the groundwater table, three wells downstream and one upstream (300 to 350 feet deep). This permit is issued subject to the Utah Bureau of Water Pollution Control receiving test results taken at these monitoring wells on parameters shown on page 19 of Volume 2.
4. The pond will be lined from existing earth materials at the site as described in page 14 of Volume 2 of the Notice of Intentions to minimize leakage and provide a safeguard against potential groundwater degradation.

Sincerely,

UTAH WATER POLLUTION COMMITTEE

*Calvin K. Sudweeks*  
Calvin K. Sudweeks  
Executive Secretary

EHP:laf

cc: Southwestern District Health Department

*MFR 3/17/81*  
*I called Earl Pearce this am re*  
*specs for monitoring holes. None. Up to us.*  
*Just as long as samples can be taken. Also*  
*we can put 2 holes upstream + 2 holes downstream*  
*(one of which is WL-14) instead of 1 + 3 mentioned*  
*above in Para 3. above.*  
*W*

## REPORT OF ANALYTICAL RESULTS

Client : Hecla Mining Co.  
Date of Sample Receipt : 8/23/90  
Date of Report : 8/28/90

Determination : Cyanide WAD

Method : Colorimetric

- pH 4.5 to 6  
acetic acid

SVL Sample ID	Client Sample ID	Matrix	Result	Units
---------------	------------------	--------	--------	-------

01484	T-1 8-20-90	SOIL	11.4	mg/kg
01485	T-2 8-20-90	SOIL	31.4	mg/kg
01486	T-3 8-20-90	SOIL	26.4	mg/kg
01487	T-4 8-20-90	SOIL	36.6	mg/kg
01488	T-5 8-20-90	SOIL	7.6	mg/kg
01489	T-6 8-16-90	SOIL	33.0	mg/kg

## REPORT OF ANALYTICAL RESULTS

Client :Hecia Mining Co.  
Date of Sample Receipt : 8/23/90

Date of Report : 8/28/90

Determination :Cyanide Total

Method : Colorimetric

SVL Sample ID	Client Sample ID	Matrix	Result	Units
01484	T-1 8-20-90	SOIL	14.8	mg/kg
01485	T-2 8-20-90	SOIL	33.0	mg/kg
01486	T-3 8-20-90	SOIL	41.6	mg/kg
01487	T-4 8-20-90	SOIL	47.2	mg/kg
01488	T-5 8-20-90	SOIL	18.2	mg/kg
01489	T-6 8-16-90	SOIL	66.6	mg/kg



HECLA MINING COMPANY

August 24, 1990

MEMORANDUM TO: Escalante File

FROM: Bryan Johnson

SUBJECT: Tailings Well Depths and Other Groundwater Information

---

On August 24, 1990, Randy Jones of Escalante called in to report groundwater levels for Tailing Monitoring Wells (TMW) 1, 2 and 3. Those results are:

Station	Well Surface Elevation (Feet)	Depth to Water (Feet)
TMW 1	5,430	306
TMW 2	5,340	233
TMW 3	5,425	318

According to Jones, this data represents a 16-foot elevation drop over nine years.

Groundwater Elevation Calculation

Groundwater elevation TMW 1 = 5,430 - 306 = 5,124 feet  
Groundwater elevation TMW 2 = 5,340 - 233 = 5,107 feet  
Groundwater elevation TMW 3 = 5,425 - 318 = 5,107 feet

This shows that groundwater flow is to the southeast and the groundwater gradient is approximately 0.85%.

PBJ:dld